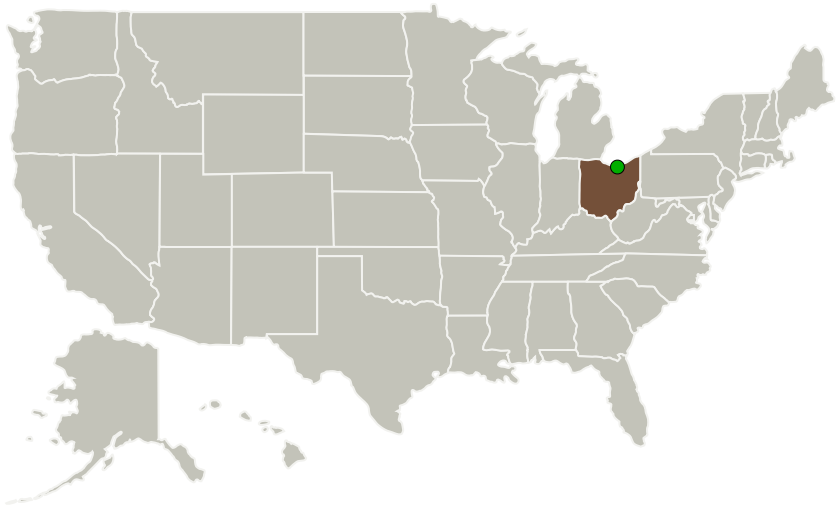
No-Oven, No-Autoclave, Composite Processing, Phase II

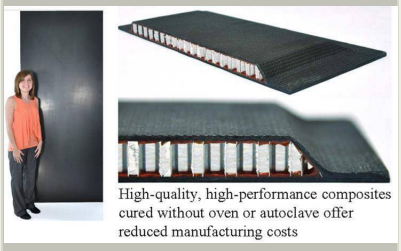
Completed Technology Project (2012 - 2014)

Project Introduction

Cornerstone Research Group Inc. (CRG) proposes to continue the efforts from the 2010 NASA SBIR Phase I topic X5.03, "No-Oven, No-Autoclave (NONA) Composite Processing." NONA offers NASA the ability to manufacture composites without an oven or autoclave, which will significantly decrease manufacturing costs. Large, single-piece composite structures for NASA Heavy Lift Launch Vehicles are currently expensive to fabricate partly because of the capital equipment (ovens, autoclaves, and tooling) needed to cure the part and maintain tolerances at cure conditions. There are only a few autoclaves in the world large enough to support large composite fabrication, and they are already committed to long-term programs. The cost of building additional autoclaves is prohibitive, and inherent size constraints still remain. CRG's innovative technology addresses these roadblocks by providing: - High-performance, 350F epoxy composite cured without oven or autoclave - Decreased capital, operating, and labor costs - No post cure required - A scalable resin infusion process - Increased part throughput

Primary U.S. Work Locations and Key Partners





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Small Business Innovation Research/Small Business Tech Transfer

No-Oven, No-Autoclave, Composite Processing, Phase II

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Organizations Performing Work	Role	Type	Location
Cornerstone Research Group, Inc.	Lead Organization	Industry	Miamisburg, Ohio
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations
Ohio

Project Transitions

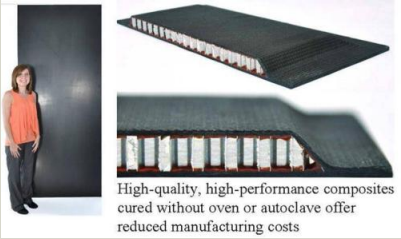
April 2012: Project Start

April 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138360)*

Images



Project Image
No-Oven, No-Autoclave, Composite Processing
(https://techport.nasa.gov/image/131342)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Cornerstone Research Group, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Michael D Rauscher

Co-Investigator:
Michael Rauscher

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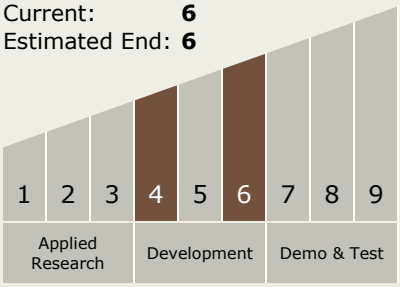
Completed Technology Project (2012 - 2014)

Technology Maturity (TRL)

Start: **4**
Current: **6**
Estimated End: **6**



Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.4 Manufacturing
    - TX12.4.1 Manufacturing Processes

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System